

**PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION**

**2 GHz BROADBAND  
PERSONAL COMMUNICATIONS SERVICES  
REGULATORY HANDBOOK**

***April 1995***

**Prepared By:**

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Katherine M. Holden  
Eric W. DeSilva  
Lauren A. Carbaugh  
WILEY, REIN & FIELDING**

**Counsel to PCIA**

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## Foreword

### *The PCIA 2 GHz Broadband Personal Communications Services Regulatory*

*Handbook* was prepared prior to the Court of Appeals for the District of Columbia issuing a stay of the C Block designated entity auctions in *Telephone Electronics Corp. v. F.C.C.*, No. 95-1015, Order (D.C. Cir. Mar. 15, 1995). In addition to delaying the C Block auctions and subsequent auctions by the Commission, the TEC appeal could potentially alter the ground rules for participation by designated entities. PCIA intends to release an update to the regulatory handbook when, and if, modifications to the designated entity regulations are adopted by the Commission.

# TABLE OF CONTENTS

I.	INTRODUCTION . . . . .	1
A.	Purpose of This Handbook . . . . .	1
B.	PCIA and Its Objectives . . . . .	2
1.	Committed to the Wireless Vision . . . . .	2
2.	Creating New Opportunities . . . . .	2
3.	The Voice for PCS . . . . .	5
4.	Point of Contact . . . . .	5
C.	Structure and Contents of Handbook . . . . .	7
II.	OVERVIEW OF 2 GHz BROADBAND PCS ALLOCATIONS AND LICENSING RULES . . . . .	8
A.	Definition of Broadband PCS . . . . .	8
B.	Spectrum Allocation and Service Areas . . . . .	8
C.	Restrictions on Ownership/Eligibility . . . . .	12
1.	The 40 MHz PCS Spectrum Cap . . . . .	12
2.	The 45 MHz CMRS Spectrum Cap . . . . .	12
3.	Cellular/PCS Cross-Ownership Rules . . . . .	13
a.	<i>Attribution Rules</i> . . . . .	14
b.	<i>Attribution Rules for Certain Designated Entities</i> . . . . .	16
c.	<i>Cellular Divestiture</i> . . . . .	17
4.	Limit On Entrepreneurs' Blocks . . . . .	18
5.	Non-U.S. Ownership Restrictions . . . . .	18

III.	2 GHz BROADBAND PCS LICENSING RULES AND PROCEDURES . . . . .	20
A.	Pre-Auction Application Procedures . . . . .	20
1.	Initial FCC Public Notice . . . . .	20
2.	Short Form Application . . . . .	20
3.	Second and Third FCC Public Notices . . . . .	21
4.	Upfront Payment . . . . .	22
5.	Fourth FCC Public Notice . . . . .	22
B.	Conduct of the Broadband PCS Auctions . . . . .	23
1.	Bidding Rounds . . . . .	24
2.	Auction Stages . . . . .	27
3.	Minimum Bid Increments . . . . .	28
4.	Activity Rules . . . . .	29
5.	Stopping Rules . . . . .	30
6.	Penalty for High Bid Withdrawn Prior to Auction Close . . . . .	31
C.	Post-Auction Payment And Procedures . . . . .	31
1.	Down Payment . . . . .	31
2.	Long Form Application . . . . .	32
3.	Public Notice and Petition To Deny Procedures . . . . .	33
4.	Bid Default Penalties . . . . .	33
D.	Anti-Collusion Regulations . . . . .	34
1.	Limitations on Bidders Prior to Filing an FCC Form 175 . . . . .	34
2.	Limitations on Bidders After Filing an FCC Form 175 . . . . .	35

3.	Consequences of Failing To Comply With Anti-Collusion Requirements . . . . .	37
E.	Special Provisions Relating to Designated Entities . . . . .	37
1.	Bidding In the Entrepreneurs' Blocks . . . . .	37
a.	<i>Qualifying as an Entrepreneur</i> . . . . .	37
b.	<i>Nonattributable Interests</i> . . . . .	41
c.	<i>Financial Benefits Requirements</i> . . . . .	43
d.	<i>Five-Year Holding Rule and Limited Transfer Period</i> . . . . .	44
2.	Qualifying as a Designated Entity . . . . .	45
a.	<i>Small Businesses</i> . . . . .	45
b.	<i>Rural Telephone Companies</i> . . . . .	47
c.	<i>Women and/or Minority Owned Businesses</i> . . . . .	47
3.	Designated Entity Preferences . . . . .	53
a.	<i>Reduced Upfront Payments</i> . . . . .	54
b.	<i>Installment Payments</i> . . . . .	54
c.	<i>Bidding Credits</i> . . . . .	55
d.	<i>Tax Certificates</i> . . . . .	56
e.	<i>License Partitioning</i> . . . . .	58
f.	<i>Controlling Abuse</i> . . . . .	59
4.	Affiliation . . . . .	59
a.	<i>In General</i> . . . . .	59
b.	<i>Directors, Officers, Key Employees, and Management</i> . . . . .	61
c.	<i>Identity of Interest</i> . . . . .	61

	<i>d. Stock Ownership</i>	62
	<i>e. Trusts</i>	63
	<i>f. Waiver of Affiliation</i>	63
	<i>g. Management Agreements and Joint Marketing Agreements</i>	63
IV.	2 GHz BROADBAND PCS TECHNICAL RULES	65
A.	Power Limits	65
B.	Non-Interference Obligations	65
	1. Emissions Limits	66
	2. Coexisting With Other PCS Users	67
	3. Interoperability Standards	67
C.	International Coordination	68
D.	PCS Equipment Type Acceptance Requirements	69
E.	PCS Numbering	71
F.	911 and E-911 Requirements	73
V.	2 GHz BROADBAND PCS OPERATIONAL RULES AND REGULATIONS	73
A.	Federal and State Jurisdictional Relationship	73
B.	CMRS Regulations	75
	1. Obligation To Provide Service at Just and Reasonable Rates on a Non-Discriminatory Basis	77
	2. Interconnection	78
	3. Section 208 Complaint Procedures	79
	4. Telephone Operator Consumer Services Improvement Act Requirements	80

5.	Telecommunications Relay Services Obligations . . . . .	82
C.	Permissible Communications . . . . .	83
D.	Conditions on Authorizations . . . . .	83
1.	License Term and Renewal . . . . .	83
2.	Build-Out Requirements . . . . .	84
E.	Transfer and Assignment of PCS System Licenses . . . . .	85
1.	Procedures for Transfers of Control and Assignment of Authorizations . . . . .	85
2.	Ensuring Compliance With Ownership and Control Obligations . . .	87
3.	Sublicensing PCS Systems by Frequency or Area . . . . .	89
4.	Trafficking Considerations for Designated Entities . . . . .	90
F.	Regulation of Base Station Sites and Antenna Structures . . . . .	91
1.	Marking and Lighting of Antenna Structures . . . . .	91
a.	<i>Federal Aviation Administration Requirements</i> . . . . .	92
b.	<i>FCC Requirements</i> . . . . .	93
2.	Environmental Impact Considerations . . . . .	93
3.	Electromagnetic Energy Emissions Limits . . . . .	94
4.	Local Zoning . . . . .	95
G.	Privacy Considerations . . . . .	95
1.	Protecting Subscriber Privacy . . . . .	95
2.	Assistance to Law Enforcement . . . . .	97
H.	Roaming and Roaming Agreements . . . . .	99
I.	Resale of Interstate and International Communications . . . . .	100



1.	Resale of Interstate Services . . . . .	101
2.	Resale of International Services . . . . .	102
J.	Reporting Requirements and Regulatory Fees . . . . .	104
K.	Reporting Requirements and Regulatory Fees . . . . .	104
VI.	BACKBONE MICROWAVE AUTHORIZATION PROCEDURES AND OPERATIONAL REQUIREMENTS . . . . .	105
A.	Uses . . . . .	105
B.	Application Procedures and Prior Coordination Procedures . . . . .	106
C.	License Term . . . . .	107
D.	Temporary Fixed Authority and Blanket Special Temporary Authority . .	108
VII.	2 GHz MICROWAVE LICENSEE RIGHTS AND OBLIGATIONS . . . . .	109
A.	Interference Protection . . . . .	109
B.	Microwave Licensees Affected by the Transition Rules . . . . .	113
C.	Relocation Periods for Microwave Licensees . . . . .	114
D.	The Voluntary Negotiation Process . . . . .	115
E.	The Mandatory Negotiation Process . . . . .	116
F.	Involuntary Relocation . . . . .	117
VIII.	CONCLUSION . . . . .	119
App. A	-- Summary of FCC Forms and Fees . . . . .	A1
App. B	-- Sample Electromagnetic Energy Emissions Calculation . . . . .	B1
App. C	-- Sample PCS/OFS Interference Calculations . . . . .	C1

## INDEX TO FIGURES

Figure 1	Timeline of PCIA PCS Milestones . . . . .	3
Figure 2	PCIA Membership by Industry Sector . . . . .	6
Figure 3	Relationship Between Broadband PCS Allocations . . . . .	9
Figure 4	MTA License Territories . . . . .	11
Figure 5	Simultaneous Multiple-Round Broadband PCS Auction Rules . . . . .	25
Figure 6	Overview of Broadband PCS Bidding Procedures . . . . .	26
Figure 7	Designated Entity Eligibility and Preferences . . . . .	50
Figure 8	Designated Entity Control Group (CG) Ground Rules . . . . .	51
Figure 9	Basic Designated Entity Attribution Ground Rules . . . . .	52
Figure 10	Applicant Affiliates . . . . .	64
Figure 11	Distribution of OFS Links in Relation to the FCC's Block Allocations for Personal Communications Services . . . . .	111

## INDEX TO TABLES

Table 1	Broadband PCS Band Plan . . . . .	10
Table 2	Broadband PCS Minimum Bid Increments . . . . .	28
Table 3	Required Broadband PCS Auction Activity Levels . . . . .	30
Table 4a	Control Group Ownership Option A . . . . .	49
Table 4b	Control Group Ownership Option B . . . . .	49
Table 5	Bidding Preferences in Entrepreneurs' Blocks . . . . .	53
Table 6	Title II Regulations Applicable To PCS Licensees . . . . .	76
Table 7	PCS/OFS Coordination Table . . . . .	110
Table 8	Minimum Negotiation Periods for 2 GHz Microwave Relocation . . . . .	114

# **I. INTRODUCTION**

## **A. Purpose of This Handbook**

This handbook is intended to provide a concise statement of the regulatory ground rules, as they currently exist, imposed by the Federal Communications Commission ("FCC") for the new licensed broadband personal communications services ("PCS") operating in the 2 GHz band. It is designed to be a reference tool for the entire industry participating in this new segment of the wireless, mobile communications marketplace. A companion edition, the *900 MHz Narrowband Personal Communications Services Regulatory Handbook*, provides a similar overview of the regulations applicable to narrowband PCS systems operating in the 900 MHz band.

While this handbook is intended to be a complete and accurate review of the licensing and operational requirements governing PCS, it is not meant to serve as a substitute for the reader's own review and analysis of the applicable regulations and policies. In addition, this handbook reviews only requirements imposed at the federal level by the FCC; there also may be applicable requirements imposed by state and local regulatory bodies. More importantly, as of the date of publication of this handbook, many rules and policies affecting PCS are undergoing further review by the FCC, and information contained in this handbook may be superseded by legal or regulatory developments that may occur subsequent to publication. Before the reader undertakes any action based on the material set forth in this handbook, it is advisable to take steps to ensure that such action is based on the most current set of facts, governing laws and rules, and their interpretation.

## **B. PCIA and Its Objectives**

### **1. Committed to the Wireless Vision**

Whether your company offers paging, cellular, data or any other form of communications services, the key concept of "personalized communications" will drive your business in the communications world of the future. As the wireless communications industry continues to target the mass market, knowing what the consumer wants and needs and developing personalized services to meet those needs will be vital to success.

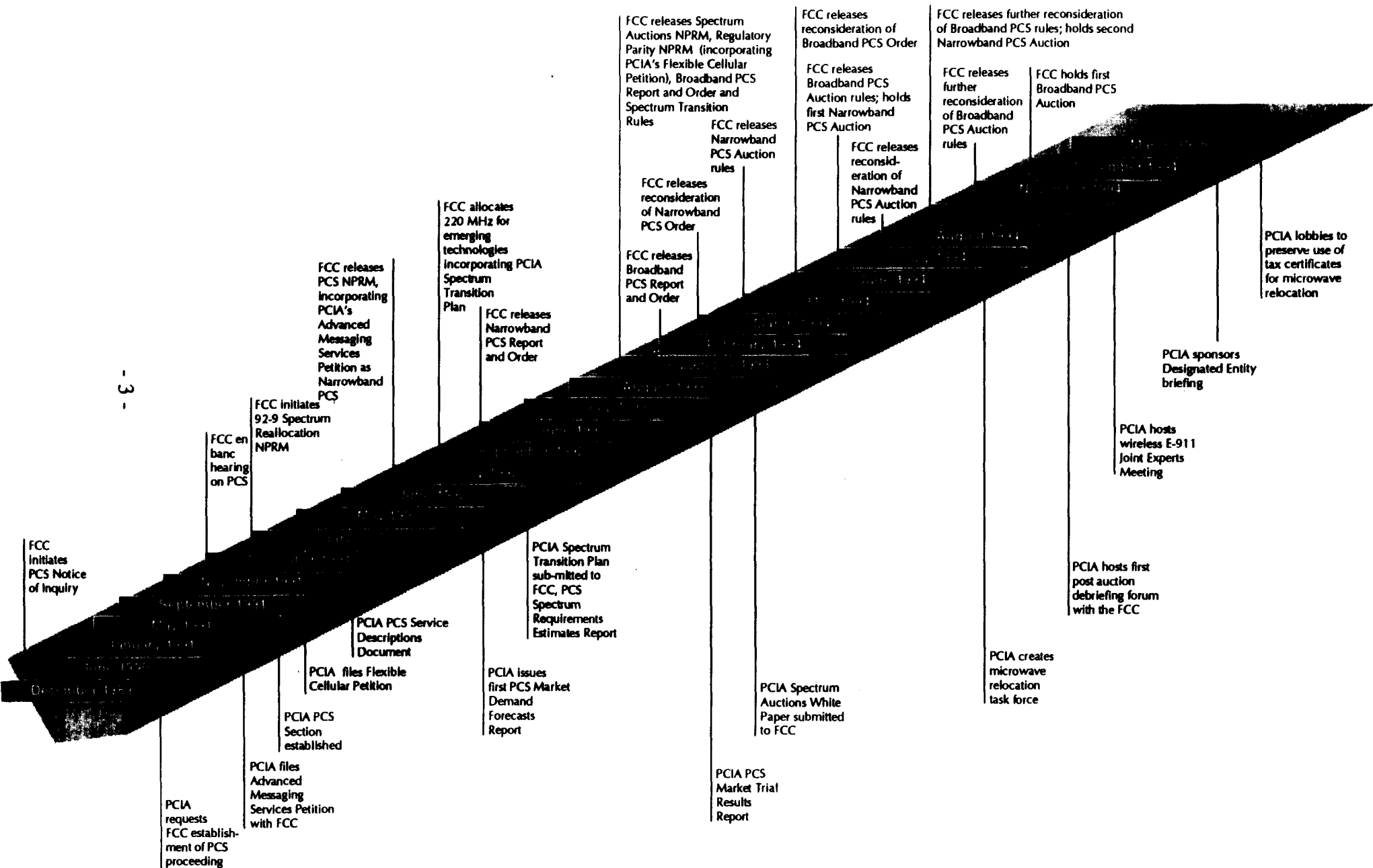
Established in 1949, the Personal Communications Industry Association (formerly Telocator) is the leading national trade association for companies in the personal communications services industry. Since its inception, PCIA has been instrumental in advancing regulatory policies, legislation and technological standards that have helped launch the age of personal communications services.

One of PCIA's greatest strengths is its ability to foster and to represent consensus in order to advance the interests of the PCS industry. Through market forecasts, publications, committees, and its annual convention -- the Personal Communications Showcase -- PCIA is committed to maintaining its position as the association for the PCS industry.

### **2. Creating New Opportunities**

As shown in the timeline in Figure 1, beginning with its December, 1989, request for FCC establishment of a PCS proceeding, PCIA has played an active role in effectuating change to foster continued industry growth and development. PCIA has produced some of

## PCIA PCS/Paging/Cellular Activities Timetable



the most widely cited studies and white papers on PCS issues through the work of three main committees -- the PCS Technical and Engineering, PCS Marketing and Consumer Affairs, and PCS Legislative and Regulatory committees. These documents include:

- PCIA's PCS Market Demand Forecasts, which illustrated market demand for both existing and new PCS services in a fully competitive market in 1998 and 2003;
- PCS Market Trials Report, which summarized findings from the initial round of PCS market and technical trials;
- PCS Spectrum Auctions White Paper, which outlined key issues facing the industry and the FCC as it prepares to undertake spectrum auctions for PCS; and,
- Standards Requirements Documents, which analyze critical issues such as requirements for a Common Air Interface.

PCIA has also demonstrated its commitment to PCS through its involvement in recent activities designed to remove significant obstacles to the timely introduction of functional and competitive PCS services. Highlights of some of PCIA's efforts in this regard include:

- PCIA concluded an agreement with Rand McNally that permits the industry and the FCC to reproduce, create derivative works from, publicly distribute and publicly display the MTA/BTA listings adopted in the Commission's 2 GHz PCS Second Report and Order in connection with the licensing, building, marketing and operation of a PCS service by an applicant free from any individual licensing requirement.
- PCIA has worked, and continues to work, with public safety organizations, such as the National Emergency Number Association and the Association of Public-Safety Communications Officials, to develop sound policies and procedures for E911 capabilities. The PCIA/NENA/APCO report to the FCC, in fact, formed the basis for much of the FCC's NPRM on E-911.
- PCIA has taken a leadership role in developing technical standards for spectrum sharing. Because PCS providers in the 1850-1990 MHz band will

initially share spectrum with the fixed microwave facilities which currently operate in that band, spectrum sharing standards are crucial to the PCS industry. PCIA has been extensively involved in developing the FCC's rules for spectrum sharing as well as revising TIA Bulletin 10F to address interference and sharing standards between PCS and fixed microwave licensees.

- PCIA is providing critical industry support to ensure timely and reasonable interconnection for new PCS providers. PCIA supports the FCC's decision to require local exchange carriers ("LECs") to provide reasonable and fair interconnection for all commercial mobile radio service providers, including PCS providers, and has been developing model agreements to assist PCS licensees in negotiating such interconnection agreements.

### **3. The Voice for PCS**

As shown in Figure 2, PCIA's membership includes PCS licensees and companies in the paging, cellular, specialized mobile radio, cable, manufacturing, computer, mobile data and the local and interexchange sectors of the industry. For more information about PCIA membership, committees, publications, meetings and services, contact PCIA's Member Relations department at 1-800/326-8638.

### **4. Point of Contact**

In the event you wish to obtain more information about membership in PCIA, the services described above, or any other activities of the association, please contact:

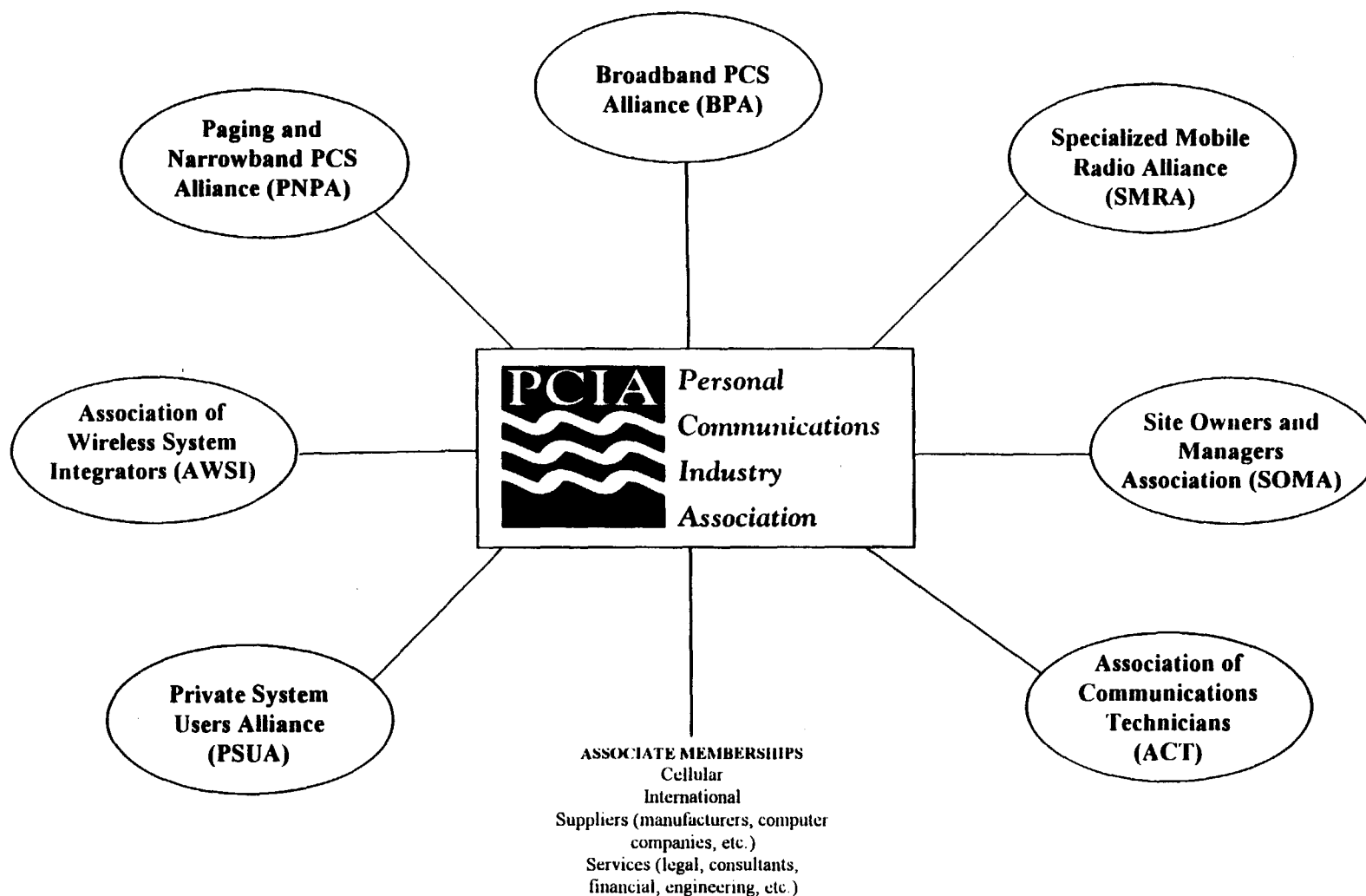
Personal Communications Industry Association  
1019 19th Street, N.W.  
Suite 1100  
Washington, D.C. 20036  
(202) 467-4770

PCIA will be pleased to respond to your requests.



# PCIA's Broad, Powerful Membership Base

## A Federation of Alliances



## **C. Structure and Contents of Handbook**

The *PCIA 2 GHz Broadband PCS Regulatory Handbook* is divided into sections dealing, respectively, with broadband PCS market structure, competitive bidding, technical regulations, operational requirements, point-to-point microwave usage, and microwave relocation. The sections are structured as follows:

- Part II of this handbook provides a general overview of the market structure adopted for broadband PCS, including spectrum allocations, license areas, and ownership limitations.
- Part III discusses the competitive bidding, or auction, rules used to select applicants in the broadband PCS service, with specific discussions of special benefits provided for classes of designated entities, how to qualify as a designated entity, and bidding collusion rules.
- Part IV addresses the technical requirements for broadband PCS systems, such as the emissions and power limitations on such systems, coordination between adjacent market licensees, coordination with Canadian and Mexican radio systems, type acceptance of radio equipment, PCS numbering, and 911 and E-911 requirements.
- Part V reviews the operational requirements imposed on broadband PCS licensees, including: the extent of state and federal authority over commercial mobile radio service providers; Title II, or common carrier, obligations; transfer of control and license assignment requirements; environmental impact, zoning, and FAA considerations; privacy rights of subscribers and obligations to assist law enforcement; roaming and resale issues; and other considerations.
- Section VI discusses the licensing and use of point-to-point microwave systems used that will be used by many carriers to backhaul and distribute traffic within a broadband PCS network.
- Finally, Section VII discusses the FCC process for relocating incumbent microwave users in the broadband PCS allocations, including the voluntary and mandatory negotiation procedures, the rights and obligations of PCS and microwave licensees, and the involuntary relocation process.

The handbook also contains a number of appendices relevant to broadband PCS and wireless regulation generally.

## **II. OVERVIEW OF 2 GHz BROADBAND PCS ALLOCATIONS AND LICENSING RULES**

### **A. Definition of Broadband PCS**

The FCC has defined 2 GHz broadband personal communications services as a family of mobile or portable radio communications services that involve offerings to individuals and businesses and can be integrated with a variety of competing networks.<sup>1</sup> This flexible definition is designed to include the widest possible range of wireless services and devices that will enable people to communicate anytime and virtually anywhere. For example, a new generation of such services may include small, lightweight, multi-function portable phones, portable facsimile, and other imaging devices, and new types of multi-channel cordless phones.

### **B. Spectrum Allocation and Service Areas**

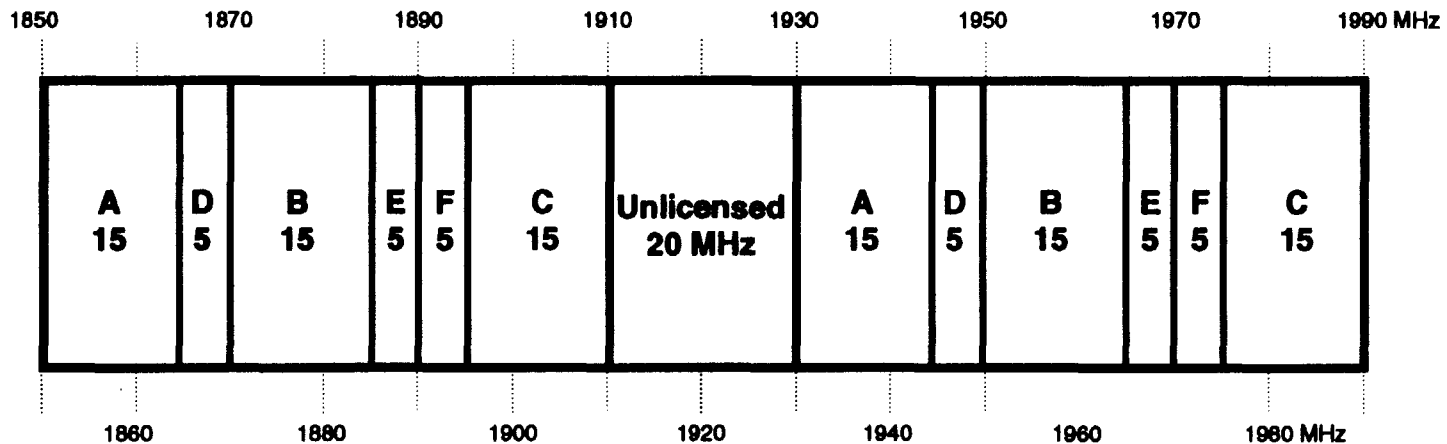
The FCC has allocated 120 MHz of spectrum for licensed broadband PCS in the 1850-1990 MHz band. The broadband PCS spectrum is divided into three 30 MHz blocks (blocks A, B and C) and three 10 MHz blocks (blocks D, E and F). The relationship between these allocations is shown in Figure 3.

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<sup>1</sup> See Amendment of the Commission's Rules To Establish New Personal Communications Services, 8 FCC Rcd 7700, 7712 (1993).

# Spectrum Allocation And Grouping For Broadband PCS

## Allocated Broadband PCS Spectrum



- For Purposes of the Broadband Auctions, the FCC Has Combined the Blocks in the Following Groups and Will Auction Each Group in a Separate Simultaneous Multiple-Round Auction:

<b>Group 1</b>	<b>A &amp; B</b>	—	99 MTA Licenses
<b>Group 2</b>	<b>C</b>	—	493 BTA Licenses*
<b>Group 3</b>	<b>F</b>	—	493 BTA Licenses*
<b>Group 4</b>	<b>D &amp; E</b>	—	986 BTA Licenses

\* Designated as the Entrepreneurs' Blocks with Restricted Eligibility. The FCC has reserved the discretion to hold two separate simultaneous multiple round auctions for the entrepreneurs' block licenses, one auction for the Block C licenses and one for the Block F licenses.

The Commission has also established two different service areas for these blocks based on Rand McNally's Major Trading Areas ("MTAs") and Basic Trading Areas ("BTAs"). As shown in Figure 4, there are 51 MTAs, each roughly the size of a state. There are 493 BTAs, each approximately the size of several counties. The specific area covered by the BTAs can be found in the *Commercial Atlas & Marketing Guide* by Rand McNally. The licenses in frequency blocks A and B will be awarded on an MTA basis, and the licenses on frequency blocks C, D, E and F will be awarded on a BTA basis. A total of 2,074 broadband PCS licenses will be issued:<sup>2</sup>

$$\begin{array}{rcl}
 2 \times 50 \text{ MTAs} & = & 102 \\
 4 \times 493 \text{ BTAs} & = & \underline{1,972} \\
 & & 2,074
 \end{array}$$

The PCS band plan is summarized in Table 1 below.

TABLE 1: BROADBAND PCS BAND PLAN			
Frequency Block	Amount of Spectrum	Service Area	Frequency Range
A	30 MHz	MTA	1850-1865/1930-1945 MHz
B	30 MHz	MTA	1870-1885/1950-1965 MHz
C	30 MHz	BTA	1895-1910/1975-1990 MHz
D	10 MHz	BTA	1865-1870/1945-1950 MHz
E	10 MHz	BTA	1885-1890/1965-1970 MHz
F	10 MHz	BTA	1890-1895/1970-1975 MHz

<sup>2</sup> Because the FCC has granted pioneer's preferences to three broadband PCS applicants, only 2071 licenses will be awarded through the competitive bidding process. The preferences were granted for the Los Angeles, New York, and Washington, D.C. MTAs.

Based on Material Copyrighted (c) 1992 by Rand McNally & Company. Rights granted pursuant to a license from Rand McNally & Company (through an arrangement with the Personal Communications Industry Association) to all interested parties for use solely in connection with the licensing, building, marketing and operation of personal communications services, certain specialized mobile radio services and local multipoint distribution services.

## **C. Restrictions on Ownership/Eligibility**

### **1. The 40 MHz PCS Spectrum Cap**

PCS licensees may aggregate up to 40 MHz of broadband PCS spectrum in any geographic area. For purposes of this limitation, a PCS licensee is an entity that has an attributable ownership interest of 5 percent or more in a PCS license or, as discussed in Section II(C)(3), an attributable management agreement in a PCS system. Any entity having a 5 percent or greater ownership interest in a PCS licensee will have that licensee's spectrum count toward the entity's 40 MHz maximum. Ownership interests of less than 5 percent will not be considered in applying this cap. The applicable rules for determining attributable ownership interests in a PCS license are discussed under "Cellular/PCS Cross-Ownership Rules," in Section II(C)(3).

### **2. The 45 MHz CMRS Spectrum Cap**

The FCC has adopted a cap of 45 MHz on the total amount of PCS, cellular, and specialized mobile radio ("SMR") service spectrum in a given geographic area in which a single entity may have an attributable interest. The attribution standards adopted for purposes of the CMRS spectrum cap track the existing standards for cellular and PCS licenses discussed in Section II(C)(3). Thus, any interest greater than 20 percent in a cellular licensee is attributable and any interest greater than 5 percent in a PCS licensee is generally

attributable.<sup>3</sup> SMR interests are generally treated like cellular interests, so that, for purposes of the CMRS spectrum cap, a 20 percent interest in an SMR system is attributable, only interests with a 10 percent population overlap are counted, and looser restrictions apply to designated entity-owned SMR systems (40 percent ownership interests are attributable). However, due to technical concerns, the FCC determined that regardless of how much SMR spectrum is controlled by a licensee, no more than 10 MHz will be attributed to any entity for purposes of the 45 MHz CMRS spectrum cap.

### **3. Cellular/PCS Cross-Ownership Rules**

Cellular carriers are limited to one 10 MHz BTA PCS license within their cellular service area.<sup>4</sup> The "in market" restriction is triggered when an entity has a 20 percent or greater interest in a cellular carrier and the cellular carrier's service area covers 10 percent or more of the PCS service area population. Where an entity has a 20 percent or greater interest in more than one cellular system overlapping with the PCS service area, its coverage is aggregated in determining the extent of overlap under the 10 percent rule. Conversely, if an entity holds interests of less than 20 percent in a cellular license, these interests are not considered attributable, and the population covered by that cellular license area is not counted towards the 10 percent population threshold.<sup>5</sup> In addition, parties with a 20 percent or more

---

<sup>3</sup> Under some limited circumstances, insulated limited partners may acquire up to a 10 percent interest that is not attributable. See Amendment of the Commission's Rules To Establish New Personal Communications Services, GEN Docket No. 90-314, FCC 95-92 (Mar. 3, 1995).

<sup>4</sup> After January 1, 2000, entities with attributable cellular interests covering 10 percent or more of the population in a PCS service area can acquire an additional 5 MHz, for a total of 15 MHz of spectrum in their cellular service areas.

<sup>5</sup> See 47 C.F.R. § 24.204 Note 1, Example 1.



interest in a cellular carrier may not have an attributable interest in a PCS licensee (*i.e.*, 5 percent or greater ownership interest), beyond one 10 MHz BTA license, within the cellular service area.

In determining how to calculate a party's interest in a cellular licensee when it is held through multiple tiers of entities, the Commission will use a "multiplier." For example, if Company A holds a 21 percent non-controlling interest in Company B, which in turn holds a 30 percent non-controlling interest in Company C (a cellular licensee), Company A's attributable interest in Company C would be 6.3 percent ( $0.21 \times 0.3$ ). Thus, Company A would not be restricted to a 10 MHz broadband PCS license in Company C's cellular service area as its attributable interest in Company C is under 20 percent. Where an entity's ownership interest in any particular link in the ownership chain is greater than 50 percent or is controlling, the interest will be treated as if it were 100 percent.<sup>6</sup>

***a. Attribution Rules***

The FCC has established a number of rules for determining what interests are attributable for the purpose of applying the PCS spectrum limitation and the cellular/PCS cross-ownership rules. First, controlling interests are *per se* attributable. "Control" means not only majority voting equity ownership, but includes any general partnership interest, or any means of exercising actual working control over the operation of the license. The FCC

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<sup>6</sup> See Amendment of the Commission's Rules To Establish New Personal Communications Services, 9 FCC Rcd 4441 (1994).